

### **REMARKS**

Applicant respectfully requests reconsideration and allowance in view of the foregoing amendments and following remarks.

In the Office Action, mailed January 30, 2003, the Examiner rejected claims 8-14. By this amendment, claims 8, 10, and 12-14 have been amended and new claims 19-20 have been added. Following entry of these amendments, claims 8-14 and 19-20 will be pending in the application.

#### ***Drawing Objections***

In the Office Action, the Examiner objected to the drawings under 37 C.F.R. §1.84(p)(5) for failing to include reference numbers that are mentioned in the written description. These missing reference numbers include: "100", "200", "308", "314", "400", "408", and "410". The Examiner further objected to the drawings under 37 C.F.R. §1.84(p)(5) for including reference numbers that are not mentioned in the written description. These extra reference numbers include: "M<sub>3</sub>", "M<sub>12</sub>", "M<sub>23</sub>", and "R".

Applicant has filed herewith a Drawing Change Authorization Request that addresses each of the Examiner's objections. Applicant requests entry of this Request and withdrawal of the drawing objections.

#### ***Claims Rejections under 35 U.S.C. §102***

In the Office Action, the Examiner rejected claims 8-11 and 13 under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 6,369,362 to Mourant, et al. (hereinafter "Mourant"). Applicant has amended claims 8, 10 and 13 to further clarify the invention.

Applicant respectfully traverses the rejections of claims 8-11 and 13.

An anticipation rejection is proper only when a patent applicant has claimed an invention that "was described in ... a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent." 35 U.S.C. §102(e). A claim is anticipated under 35 U.S.C. §102(e) "only if each and every element as set forth in the claim is

found, either expressly or inherently described, in a single prior art reference." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988) (emphasis in original), *cert. denied*, 488 U.S. 892 (1988). "To establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted). Upon reliance on a theory of inherency, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

For at least the reasons stated below, Applicant asserts that Mourant fails to expressly or inherently describe each and every element of the invention claimed by Applicant and, therefore, that Applicant's rejected claims 8-11 and 13 are patentably distinct from Mourant.

#### Independent Claim 8

Applicant's independent claim 8, as amended, recites an on-chip signal transforming device that includes:

- a substrate;
- a first conductive layer above the substrate, wherein the first conductive layer has a first plurality of interleaved inductors, the first plurality of interleaved inductors formed completely within the first conductive layer; and
- a second conductive layer above the substrate insulated from the first conductive layer, wherein the second conductive layer has at least one inductor, the at least one inductor formed completely within one or more layers other than the first conductive layer.

Mourant neither discloses nor suggests an on-chip signal transforming device as recited, having a plurality of interleaved inductors formed completed within a first conductive layer and at least one other inductor formed in one or more conductive layers other than the first conductive layer as required by amended independent claim 8.

In asserting anticipation of the invention as claimed in independent claim 8, the Examiner refers to Mourant, Figures 6, 6A, 8 and 8A, column 5 at lines 1-20, and column 4 at lines 46-69. Figures 6, 6A 8 and 8A, and the cited disclosure sections, of Mourant illustrate an integrated circuit balun where one or both of the two coupled inductors is formed in two layers and in a stacked configuration. Mourant does not disclose or suggest the subject matter of amended independent claim 8 for at least the following reasons.

First, Mourant nowhere discloses interleaved inductors formed completely within a single conductive layer as required by amended independent claim 8. Rather, Mourant discloses that one or both of the primary and secondary inductor loops be disposed in a multi-layer (stacked) configuration. *See, for example*, Mourant Abstract. The Mourant system relies on forming the primary and/or secondary inductor in more than one layer. In contrast, Applicant's claimed invention contemplates using only one layer for the interleaved inductors.

Second, Mourant nowhere discloses an additional inductor, separate from the interleaved inductors, that is completely formed within one or more conductive layers other than the single conductive layer in which the interleaved inductors are formed as required by amended independent claim 8. Rather, Mourant discloses a single, primary, inductor formed part in one layer and part in another layer, and a single, secondary, inductor formed together with one or both parts of the primary inductor. Mourant, Figures 5, 6 and 8. In contrast, Applicant's claimed invention contemplates an inductor separate from the interleaved inductors and formed in a different conductive layer than the interleaved inductors.

Third, Mourant nowhere discloses forming three separate inductors as required by amended independent claim 8. Rather, Mourant only discloses forming a primary inductor and a secondary inductor. Mourant, Figures 6 and 8. In contrast, Applicant's claimed invention contemplates at least two interleaved inductors in one conductive layer and at least one other inductor, separate from the interleaved inductors, and formed in a different conductive layer than the interleaved inductors.

In summary, for at least the reasons presented above, Mourant neither discloses nor suggests an on-chip signal transforming device as recited, having a plurality of interleaved inductors formed completed within a first conductive layer and at least one other inductor formed

in one or more conductive layers other than the first conductive layer as required by amended independent claim 8. Accordingly, Applicant respectfully submits that amended independent claim 8 is allowable over the art of record.

#### Dependent Claims 9-11

Dependent claims 9-11 all ultimately depend from amended independent claim 8. The allowability of dependent claims 9-11 thus follows from the allowability of amended independent claim 8; as such, dependent claims 9-11 are allowable over the art of record.

#### Independent Claim 13

Applicant's independent claim 13, as amended, recites an on-chip signal transforming device that includes:

- a substrate;
- a first conductive layer above the substrate, wherein the first conductive layer has a first plurality of interleaved inductors, the first plurality of interleaved inductors formed completely within the first conductive layer; and
- a second conductive layer above the substrate insulated from the first conductive layer, wherein the second conductive layer has a second plurality of interleaved inductors, the second plurality of interleaved inductors formed completely within the second conductive layer.

Mourant neither discloses nor suggests an on-chip signal transforming device as recited, having a first plurality of interleaved inductors formed completed within a first conductive layer and a second plurality of interleaved inductors formed completely within a second conductive layer insulated from the first conductive layer as required by amended independent claim 13.

In asserting anticipation of the invention as claimed in independent claim 8, the Examiner refers to Mourant, Figures 8 and 8A. Figures 8 and 8A of Mourant illustrate an integrated circuit balun where both of the two coupled inductors are each formed in the same two layers with each half of each inductor formed in a stacked configuration.

Mourant does not disclose or suggest the subject matter of amended independent claim 13 for at least the reasons as presented above in relation to the allowability of amended independent claim 8.

Accordingly, Applicant respectfully submits that amended independent claim 13 is allowable over the art of record.

### ***Claim Rejections under 35 U.S.C. §103***

In the Office Action, the Examiner rejected claims 12 and 14 under 35 USC 102(e) allegedly as being unpatentable over U.S. Patent No. 6,396,362 to Mourant, et al. ("Mourant"). Applicant respectfully traverses the rejections of claims 12 and 14 and refers the Examiner to the following standards for a proper §103(a) rejection.

A §103(a), or obviousness, rejection is proper only when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which the subject matter pertains." 35 U.S.C. §103(a). The Examiner must make out a prima facie case for obviousness. The *en banc* Federal Circuit has held that "structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a prima facie case of obviousness." *In re Dillon*, 16 U.S.P.Q. 2d 1897, 1901 (CAFC 1990). The underlying inquiries into the validity of an obvious rejection are: "(1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness." *In re Dembiczak*, 175 F.3d 994, 998, (Fed. Cir. 1999).

Further, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

Additionally, with hindsight, a claim of obviousness can be an easy one to make. Many inventions seem obvious with the clarity of 20-20 hindsight. However, a hindsight basis for obviousness is inappropriate and cannot sustain a *prima facie* case of obviousness. Applicant's

respectfully assert that the Examiner is judging obviousness of Applicant's invention using hindsight, and as such, should reconsider the rejections from the proper perspective of the time of Applicant's invention, without the teachings of Applicant's disclosure.

For the reasons stated below and taking into consideration the standards for obviousness presented above, Applicant asserts that one of ordinary skill in the art would not have considered Applicant's invention obvious at the time of invention and, therefore, that Applicant's rejected claims 12 and 14 are not obvious over the prior art of record.

#### Dependent Claim 12

Dependent claim 12 ultimately depends from amended independent claim 8. The allowability of dependent claim 12 thus follows from the allowability of amended independent claim 8; as such, dependent claim 12 is allowable over the art of record.

Further, the Examiner alleges that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to add a third conductive layer above the top layer in the structure illustrated in Mourant, Figure 6. The Examiner further alleges that the motivation for this modification is to minimize parasitic capacitance.

In relation to the device in Figure 6 of Mourant, the parasitic capacitance minimization, as discussed in the first paragraph of column 5, is relative to the parasitic capacitance between the primary and secondary inductors of Figure 2A, where they are each in separate layers. The disclosure of Mourant progresses from the device in Figure 1A, to the device in Figure 2A, to the devices in Figures 6 and 8. The reason for this progression is to discuss the advantages of each of the devices of Figures 1A and 2A as being captured in the devices of Figures 6 and 8. The advantages of the device in Figure 1A are discussed in Mourant, column 3, lines 35-59.

By making the modification that the Examiner alleges is obvious, the hypothetical resultant device will no longer exhibit the advantages of the device in Figure 1A of Mourant. Therefore, this modification will render the Mourant Figure 6 device unsatisfactory for its intended purpose. Thus, there is no suggestion or motivation in Mourant to make the proposed modification.

Accordingly, for at least these reasons, Applicant respectfully submits that dependent claim 12 is allowable over the art of record.

#### Independent Claim 14

Mourant does not disclose or suggest the subject matter of independent claim 14, as amended, for at least the reasons as presented above in relation to the allowability of dependent claim 12.

Accordingly, for at least these reasons, Applicant respectfully submits that amended independent claim 14 is allowable over the art of record.

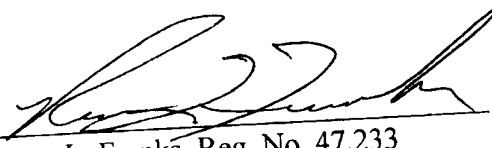
#### **Conclusion**

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition of allowance and a Notice to that effect is earnestly solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

**Charge Statement:** The Commissioner is authorized to charge Deposit Account 03-3975 (Order No. 073169-0276083) for any fees associated with this Communication, including excess claims fees and/or extension fees.

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